

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE		PAGE OF PAGES 1 1	
2. AMENDMENT/MODIFICATION NO. 000002		3. EFFECTIVE DATE 09/12/2013		4. REQUISITION/PURCHASE REQ. NO.	
5. PROJECT NO. (If applicable)		6. ISSUED BY CODE KSC		7. ADMINISTERED BY (If other than Item 6) CODE KSC	
NASA/John F. Kennedy Space Center Office of Procurement MAIL CODE OP-MS/Kelly J. Boos KENNEDY SPACE CENTER FL 32899		NASA/Kennedy Space Center Office of Procurement MAIL CODE OP-MS/Kelly J. Boos KENNEDY SPACE CENTER FL 32899			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(x) 9A. AMENDMENT OF SOLICITATION NO. NNK13486231Q			
		x 9B. DATED (SEE ITEM 11) 08/29/2013			
		10A. MODIFICATION OF CONTRACT/ORDER NO.			
		10B. DATED (SEE ITEM 13)			
CODE		FACILITY CODE			

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.  
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

**12. ACCOUNTING AND APPROPRIATION DATA (If required)**

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor ☐ is not, ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

**14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)**

The purpose of Amendment 2 is to release Questions and Answers Set 2 of the RFQ. As a result the specification has been revised. See attached Rev 1 of the specification.

The RFQ due date has been extended to September 23, 2013.

INCO TERMS 2: DESTINATION

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR		16B. UNITED STATES OF AMERICA	
15C. DATE SIGNED		16C. DATE SIGNED	
(Signature of person authorized to sign)		(Signature of Contracting Officer)	

NNK13486231Q  
ISO Containers  
Questions and Answers Set 2

Title					
Question Number	Reference: (RFP Section/SOW Section or SPEC #)	Clause #	Para #	Question/Comment	Response
3				We believe that the Specifications for both the Oxygen and LNG ISO containers have an error or typo. We believe that these specifications should read: Net Evaporation Rate:<0.3 % in LO2 per 24 hours. Net Evaporation Rate:<0.2 % in LNG per 24 hours.	Yes the evaporation rate should be less than (<) for both the LO2 and LNG Net Evaporation Rate:<0.3 % in LO2 per 24 hours. Net Evaporation Rate:<0.2 % in LNG per 24 hours.  The specification has been updated and Rev 1 is attached.
4				May a bidder quote only Item 001 or only Item 002 or must the bidder quote both Item 001 and Item 002 to be responsive?	Per clause 52.212-1 (h) Multiple awards. The Government may accept any item or group of items of an offer, unless the offeror qualifies the offer by specific limitations. Unless otherwise provided in the Schedule, offers may not be submitted for quantities less than those specified. The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit prices offered, unless the offeror specifies otherwise in the offer.

**Specification for:**  
**ISO Container for Storage of Liquid Oxygen**  
**and**  
**ISO Container for Storage of Liquid Natural Gas**

## **1.0 ISO Container for Storage of Liquid Oxygen**

Short Description: 20 Foot, ISO Container for storage of Liquid Oxygen

Detailed Requirements:

- Design Code: The container shall meet DOT 49 CFR regulations, the inner vessel shall meet ASME Boiler Pressure Vessel Code Section VIII, the external piping shall meet ASME B31.3 code. The inner vessel shall be code stamped.
- Capacity: The Gross Water Capacity of the inner vessel shall be a minimum of 5,200 gallons.
- Design Pressure: The Maximum Allowable Working Pressure (MAWP), as defined by ASME Code, of the inner pressure vessel shall be a minimum of 180 psig. The design pressure shall be limited by the shell or head, not by minor parts.
- Service Temperature: The service temperature (Coincident metal temperature) as defined in Section VIII of the ASME Code shall be -320 to +100 degrees F.
- Inner Vessel Material: Stainless steel
- Outer Vessel Material: Carbon steel
- External Piping Material: Stainless steel
- Internal Geometry: The inner vessel shall have a minimum of two (2) transverse baffles
- Connections: Fill/Withdrawal connection shall be on side of container.
- Pressure Build Coil: The container shall be capable of sustaining a minimum liquid withdraw rate of 55 gpm at 100 psig using an on-board pressure building vaporizer. The pressure build system shall have a pressure build regulator with a remote operated isolation valve.
- Insulation: Vacuum jacketed with multi-layer super insulation
- Net Evaporation Rate: **< 0.3%** in LO2 per 24 hours (ambient conditions: 14.7 psia, 59 F)
- Instrumentation: The container shall have a liquid level gauge and vessel pressure gauge with an analog output signal.
- Cleanliness: The inner vessel shall be cleaned to level 300A for oxygen service.
- Design Calculations: The pressure vessel shall be designed and constructed such that it meets the requirements of the ASME Boiler and Pressure Vessel Code. ASME documentation shall be delivered with the containers and shall contain the following: certified fabrication drawings or as built drawings; design calculations; Data reports - ASME Forms (U-1, U-1A, U-2, U-2A, U-3, U-4, A-1, A-2, A-3 as applicable); inspection, examination and test records; material thickness (head, shell, etc.); corrosion allowance (if any) and facsimile of nameplate stamping.
- Support stands capable of supporting a full container a minimum of 12" above the ground.

## 2.0 ISO Container for Storage of Liquid Natural Gas

Short Description: 40 Foot, ISO Container for storage of Liquid Natural Gas.

### Detailed Requirements:

- Design Code: The container shall meet DOT 49 CFR regulations, the inner vessel shall meet ASME Boiler Pressure Vessel Code Section VIII, the external piping shall meet ASME B31.3 code. The inner vessel shall be code stamped.
- Capacity: The Gross Water Capacity of the inner vessel shall be a minimum of 11,400 gallons.
- Design Pressure: The Maximum Allowable Working Pressure (MAWP), as defined by ASME Code, of the inner pressure vessel shall be a minimum of 100 psig. The design pressure shall be limited by the shell or head, not by minor parts.
- Service Temperature: The service temperature (Coincident metal temperature) as defined in Section VIII of the ASME Code shall be -320 to +100 degrees F.
- Inner Vessel Material: Stainless steel
- Outer Vessel Material: Carbon steel
- External Piping Material: Stainless steel
- Internal Geometry: The inner vessel shall have a minimum of four (4) transverse baffles
- Connections: Fill/Withdrawal connection shall be on side of container.
- Pressure Build Coil: The container shall be capable of sustaining a minimum liquid withdraw rate of 100 gpm (LNG) at 100 psig using an on-board pressure building vaporizer. The pressure build system shall have a pressure build regulator with a remote operated isolation valve.
- Insulation: Vacuum jacketed with multi-layer super insulation
- Net Evaporation Rate: **< 0.2%** in LNG per 24 hours (ambient conditions: 14.7 psia, 59 F)
- Instrumentation: The container shall have a liquid level gauge and vessel pressure gauge with an analog output signal.
- Cleanliness: The inner vessel shall be cleaned to level 300A for oxygen service.
- Design Calculations: The pressure vessel shall be designed and constructed such that it meets the requirements of the ASME Boiler and Pressure Vessel Code. ASME documentation shall be delivered with the containers and shall contain the following: certified fabrication drawings or as built drawings; design calculations; Data reports - ASME Forms (U-1, U-1A, U-2, U-2A, U-3, U-4, A-1, A-2, A-3 as applicable); inspection, examination and test records; material thickness (head, shell, etc.); corrosion allowance (if any) and facsimile of nameplate stamping.
- Support stands capable of supporting a full container a minimum of 12" above the ground.